

Trend Study 13A-4-99

Study site name: Slaughter Flat .

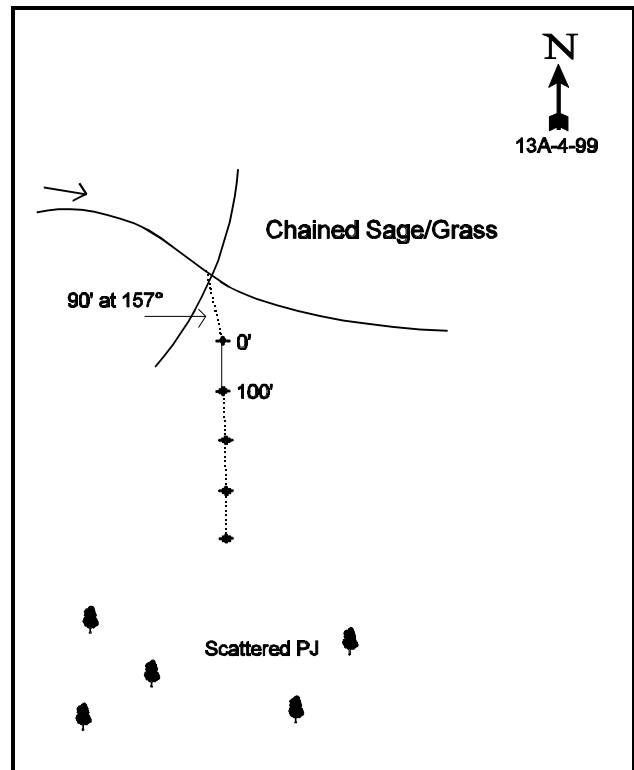
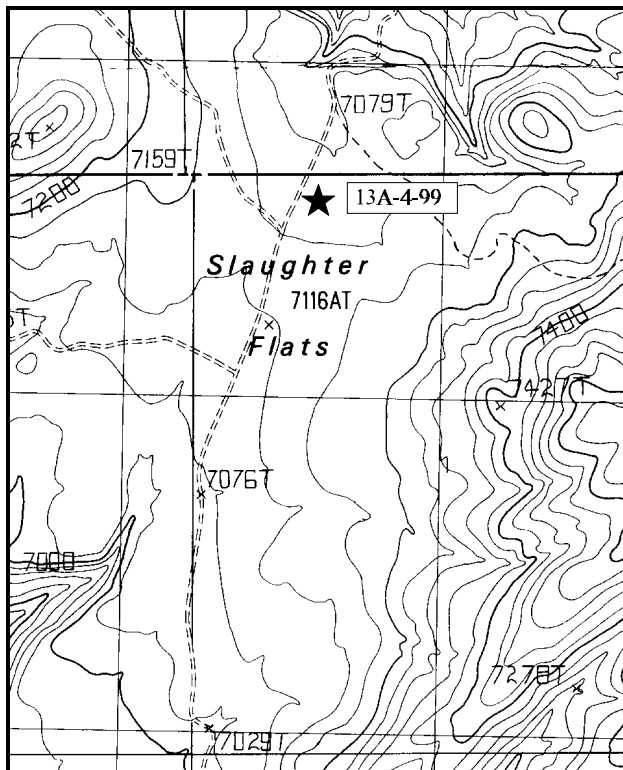
Range type: Chained, Seeded P-J .

Compass bearing: frequency baseline 165°M.

Footmark (first frame placement) 5 feet, footmarks (frequency belts) line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

LOCATION DESCRIPTION

Turn east on the Black Ridge Road 0.15 miles south of mile marker 113 on SR 191 south of Moab. Proceed up canyon 3.65 miles to a fork by a stock pond. Bear right up the dugway for 1.15 miles to a fork. Stay left (road #116), go 1 mile to another fork. Stay left, proceed 0.6 miles to a fork. Stay right, proceed 0.35 miles to the powerlines. Pass under the powerlines and across a road. Continue 0.7 miles to a fence (Forest Service boundary). Proceed through the gate, go 1.7 miles to a crossroads in a large chained flat. The transect is located in the SE quarter, marked by short fence posts. The 0-foot baseline stake is tagged #7125.



Map Name: Mount Tukuhtnikivatz

Diagrammatic Sketch

Township 28S , Range 23E , Section 1

UTM 4251046.374 N, 644362.910 E

## DISCUSSION

### Trend Study No. 13A-4 (33-4)

The Slaughter Flat Study area has long been recognized as important big game winter range. In 1999, pellet group transects indicated use at 25 deer days use/acre (62 ddu/ha), 53 elk days use/acre (131 edu/ha), and 22 cow days use/acre (53 cdu/ha). In 1974, 940 acres were chained and seeded. It is successional now a sagebrush-grass community. This Forest Service land is grazed using a combination rest/deferred rotation system from mid-June through mid-October.

The transect is located in an open flat valley between pinyon-juniper ridges to the east and west. The chaining extends to the north. Due to the level valley bottom, there is not a distinguishable aspect for the site and slope is negligible. The site elevation is approximately 7,100 feet, which drains to the east.

The orange, sandy clay loam soil is moderately deep (effective rooting depth of almost 14 inches), with a loose structure on the surface. The soil has a neutral pH (7.2) and an above normal organic matter content in the soil surface. There is soil loss from the bare interspaces and evidence of sheet and rill erosion, but no gullies are on the site. There is some pedestaling of the bunch grasses.

Wyoming big sagebrush is the key browse species on the site. Identification of the *Artemisia* subspecies was difficult because of hybridization with other sagebrush subspecies and different varieties which may have been seeded onto the site after the chaining treatment. The most frequently found sagebrush subspecies on this site would be Wyoming big sagebrush. The sagebrush made up 60% of the browse cover in 1994, and 56% in 1999. There has been steady, but slight decrease in the sagebrush population since 1987. The population has gone from 3,298 plants/acre (1987), to 2,940 plants/acre (1994), to it's current level at 2,560 plants/acre (1999). The population has shown through the years, varying amounts of use, but not use that should cause this kind of loss. Thus, sagebrush loss has most likely been caused by years of extended drought and associated winter injury. The proportion of the population that shows heavy use has never exceeded 22%. Percent decadency has increased from 10% to 20%. Twenty-six percent of the population was classified as young in 1987, now this is only 16%. Biotic potential has varied greatly through the years, 0% in 1987, 12% in 1994, and only 2% in 1999. The larger, more vigorous plants (which display characteristics of Basin big sagebrush) appear to produce the most seed and show only light to moderate hedging, as opposed to the appearance of moderate to heavy hedging on the relatively smaller, mature individuals that resemble more that of Wyoming big sagebrush. Low rabbitbrush is prominent because of its relatively high density. It has increased from providing 27% to 30% of the browse cover. Other more palatable browse species are uncommon, comprising only a minor percentage of the browse population. The serviceberry, white-stemmed rubber rabbitbrush, and slenderbush eriogonum display good vigor, but sustain moderately heavy use. Overall density of other desirable browse is quite low.

In 1987, it was noted that grasses were an important vegetative component on this site as western wheatgrass was fairly thick in places; but the most abundant perennial species were needle-and-thread, muttongrass, crested wheatgrass, and Indian ricegrass. Total grass cover in 1994 was 15%, which was 43% of the total vegetative cover at that time. Cheatgrass was fairly common throughout and dense in localized areas, yet it only made up 2% of the grass cover. Twenty species of forbs were encountered on the site, but together they contributed to a little more than 3% cover.

In 1999, there were only 7 forb species which contributed to less than 1% of the cover. Of the eight perennial grass species, only crested wheatgrass and western wheatgrass showed significant increases (sum of nested frequency and cover). There were significant losses to needle and thread grass which used to be the most abundant species. There were also significant losses to bottle brush squirreltail, Indian rice grass, Sandberg bluegrass, and mutton bluegrass. Long-term drought has had a detrimental effect on most of the native grasses and forbs. Cheatgrass has greatly increased its deleterious influence on the successional development

of this community. It has increased in cover by over 23 times since 1994.

#### 1994 TREND ASSESSMENT

The trend for the soil is somewhat mixed, but the percentage of bare soil has not shown a significant change and the slight decrease in litter cover is to be expected with the extended drought. Trend for now is considered stable. The trend for the key browse is slightly down. Especially with a ratio of one in eight plants being dead. With the high biotic potential and establishment of the seedlings, this should turn around. The trend for the perennial species in the herbaceous understory is stable.

#### TREND ASSESSMENT

soil - stable

browse - slightly down

herbaceous understory - stable

#### 1999 TREND ASSESSMENT

The trend for the soil is still somewhat mixed, with the percent bare soil increasing and photo evidence of more pedestaling of herbaceous species. There were also increases in cheatgrass and prickly pear cactus. Trend for soil is slightly down. The trend for the key browse is again slightly down. This is because the ratio of dead to live plants has increased from 1:8 (11%) to 1:5 (17%). Percent decadence has also increased from 10% to 20%. The percentage of decadent plants that are classified as dying has also increased from 33% to 36%. There has also been a significant increase in the low rabbitbrush population. The trend for the perennial species in the herbaceous understory would be down overall, even with the significant increases for crested wheatgrass and western wheatgrass. These increases have not made up for the decreases for the other five native perennial species. Cheatgrass is increasing to where it elevates the hazard of fire which would cause the loss of the sagebrush component and the communities use as a big game winter range.

#### TREND ASSESSMENT

soil - slightly down

browse - slightly down

herbaceous understory - slightly down

#### HERBACEOUS TRENDS --

Herd unit 13A, Study no: 4

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'87	'94	'99	'87	'94	'99	'94	'99
G	Agropyron cristatum	<sub>a</sub> 57	<sub>a</sub> 79	<sub>b</sub> 211	23	30	74	2.23	8.42
G	Agropyron smithii	<sub>a</sub> 8	<sub>b</sub> 42	<sub>c</sub> 64	3	17	25	.31	.49
G	Bromus inermis	-	1	1	-	1	1	.00	.00
G	Bromus tectorum (a)	-	83	237	-	33	73	.32	7.39
G	Oryzopsis hymenoides	<sub>a</sub> 24	<sub>b</sub> 66	<sub>a</sub> 25	12	27	13	1.71	.83
G	Poa fendleriana	<sub>c</sub> 232	<sub>b</sub> 146	<sub>a</sub> 97	78	56	36	3.84	2.91
G	Poa secunda	<sub>a</sub> 20	<sub>b</sub> 47	<sub>a</sub> 14	9	23	5	.53	.07
G	Sitanion hystrix	<sub>b</sub> 24	<sub>b</sub> 18	<sub>a</sub> 1	12	11	1	.13	.03
G	Stipa comata	<sub>c</sub> 221	<sub>b</sub> 168	<sub>a</sub> 26	79	64	10	6.00	.63
G	Vulpia octoflora (a)	-	1	1	-	1	1	.00	.00
Total for Annual Grasses		0	84	238	0	34	74	0.32	7.39
Total for Perennial Grasses		586	567	439	216	229	165	14.77	13.41
Total for Grasses		586	651	677	216	263	239	15.10	20.81

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'87	'94	'99	'87	'94	'99	'94	'99
F	Antennaria spp.	-	3	-	-	1	-	.00	-
F	Arabis spp.	<sub>a</sub> -	<sub>b</sub> 17	<sub>a</sub> -	-	8	-	.04	-
F	Astragalus convallarius	<sub>a</sub> 11	<sub>b</sub> 35	<sub>a</sub> 3	5	15	1	1.37	.00
F	Castilleja chromosa	<sub>a</sub> 6	<sub>b</sub> 4	<sub>a</sub> -	3	3	-	.04	-
F	Cirsium spp.	-	3	-	-	1	-	.00	-
F	Cordylanthus wrightii (a)	<sub>b</sub> 16	<sub>b</sub> 17	<sub>a</sub> 2	8	8	1	.04	.03
F	Crepis acuminata	<sub>b</sub> 9	<sub>b</sub> 5	<sub>a</sub> -	7	3	-	.01	-
F	Cryptantha spp.	<sub>b</sub> 12	<sub>b</sub> 8	<sub>a</sub> -	7	5	-	.02	-
F	Draba reptans (a)	-	<sub>b</sub> 39	<sub>a</sub> 4	-	18	1	.09	.00
F	Erigeron pumilus	8	3	1	5	1	1	.00	.00
F	Gayophytum ramosissimum (a)	-	<sub>b</sub> 13	<sub>a</sub> -	-	5	-	.02	-
F	Lappula occidentalis (a)	-	<sub>b</sub> 5	<sub>a</sub> -	-	3	-	.01	-
F	Microsteris gracilis (a)	-	<sub>b</sub> 73	<sub>a</sub> 15	-	28	6	.38	.03
F	Petradoria pumila	-	3	-	-	1	-	.03	-
F	Phlox longifolia	<sub>a</sub> -	<sub>b</sub> 98	<sub>a</sub> -	-	44	-	.27	-
F	Polygonum douglasii (a)	-	<sub>b</sub> 49	<sub>a</sub> -	-	21	-	.10	-
F	Ranunculus testiculatus (a)	-	<sub>b</sub> 12	<sub>a</sub> -	-	4	-	.02	-
F	Sphaeralcea coccinea	<sub>a</sub> 17	<sub>b</sub> 78	<sub>b</sub> 64	9	34	29	.57	.71
F	Taraxacum officinale	<sub>a</sub> 1	<sub>b</sub> 12	<sub>a</sub> -	1	7	-	.04	-
F	Tragopogon dubius	1	-	-	1	-	-	-	-
F	Trifolium gymnocarpon	<sub>b</sub> 118	<sub>b</sub> 102	<sub>a</sub> 3	56	49	1	.32	.00
F	Unknown forb-perennial	3	-	-	2	-	-	-	-
F	Zigadenus paniculatus	<sub>b</sub> 15	<sub>a</sub> -	<sub>a</sub> -	6	-	-	-	-
Total for Annual Forbs		16	208	21	8	87	8	0.68	0.06
Total for Perennial Forbs		201	371	71	102	172	32	2.74	0.72
Total for Forbs		217	579	92	110	259	40	3.43	0.79

Values with different subscript letters are significantly different at  $\alpha = 0.10$

## BROWSE TRENDS --

Herd unit 13A, Study no: 4

Type	Species	Strip Frequency		Average Cover %	
		04	'99	04	'99
B	Amelanchier utahensis	0	0	-	-
B	Artemisia tridentata wyomingensis	68	69	10.17	10.57
B	Chrysothamnus nauseosus albicaulis	1	1	-	-
B	Chrysothamnus viscidiflorus	83	86	4.55	5.58
B	Coryphantha vivipara arizonica	0	2	-	.00
B	Eriogonum microthecum	0	1	-	-
B	Gutierrezia sarothrae	6	2	.02	.15
B	Juniperus osteosperma	0	1	.15	.38
B	Opuntia polyacantha	42	44	.89	1.16
B	Pediocactus simpsonii	0	1	-	-
B	Pinus edulis	0	1	1.16	.93
Total for Browse		200	208	16.95	18.79

## BASIC COVER --

Herd unit 13A, Study no: 4

Cover Type	Nested Frequency		Average Cover %		
	04	'99	'87	'94	'99
Vegetation	349	358	12.75	35.90	38.68
Rock	61	15	0	.27	.06
Pavement	118	103	0	.24	.52
Litter	398	370	53.25	39.65	41.77
Cryptogams	24	50	.75	.36	.52
Bare Ground	340	314	33.25	35.01	37.35

## SOIL ANALYSIS DATA --

Herd Unit 13A, Study # 04, Study Name: Slaughter Flat

Effective rooting depth (cm)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
130.4	64.8 (14.3)	7.2	52.9	19.8	27.3	1.9	50.4	89.6	0.4

## PELLET GROUP DATA --

Herd unit 13A, Study no: 4

Type	Quadrat Frequency		Pellet Transect Days Use/Acre (ha)
	04	09	09
Rabbit	11	19	N/A
Elk	41	34	53 (131)
Deer	14	36	25 (62)
Cattle	1	1	23 (57)

## BROWSE CHARACTERISTICS --

Herd unit 13A, Study no: 4

A Y G R E		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier utahensis																		
Y	87	-	-	1	-	-	-	-	-	-	1	-	-	-	33		1	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	44	54	0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0	37	51	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			100%			00%										
'94		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	33	Dec:	-			
												'94	0		-			
												'99	0		-			
Artemisia tridentata wyomingensis																		
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	22	-	-	-	-	-	-	-	-	22	-	-	-	440		22	
	99	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
Y	87	17	7	1	1	-	-	-	-	-	24	-	2	-	866		26	
	94	19	-	-	-	-	-	-	-	-	19	-	-	-	380		19	
	99	19	-	2	-	-	-	-	-	-	21	-	-	-	420		21	
M	87	15	31	18	1	-	-	-	-	-	62	-	2	1	2166	23	22	65
	94	95	15	3	-	-	-	-	-	-	89	-	24	-	2260	19	28	113
	99	30	33	18	-	1	-	-	-	-	82	-	-	-	1640	20	28	82
D	87	2	2	3	1	-	-	-	-	-	7	-	1	-	266		8	
	94	10	3	-	-	2	-	-	-	-	8	-	2	5	300		15	
	99	9	10	5	1	-	-	-	-	-	16	-	-	9	500		25	
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	360		18	
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	480		24	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		40%			22%			06%			-11%							
'94		14%			02%			21%			-13%							
'99		34%			20%			07%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	3298	Dec:	8%			
												'94	2940		10%			
												'99	2560		20%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus nauseosus albicaulis																		
M	87	-	-	1	-	-	-	-	-	-	1	-	-	-	33	31	28	1
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	32	27	0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
D	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	99	-	1	-	-	-	-	-	-	-	1	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			100%			00%			-39%							
'94		00%			00%			00%			+ 0%							
'99		100%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	33	Dec:	0%			
												'94	20		100%			
												'99	20		100%			
Chrysothamnus viscidiflorus																		
S	87	3	-	-	-	-	-	-	-	-	3	-	-	-	100			3
	94	65	-	-	4	-	-	-	-	-	69	-	-	-	1380			69
	99	11	-	-	-	-	-	-	-	-	11	-	-	-	220			11
Y	87	36	1	-	-	-	-	-	-	-	37	-	-	-	1233			37
	94	29	-	-	-	-	-	-	-	-	29	-	-	-	780			29
	99	54	2	-	-	-	-	-	-	-	56	-	-	-	1120			56
M	87	69	3	-	-	-	-	-	-	-	72	-	-	-	2400	5	10	72
	94	312	1	-	2	-	-	-	-	-	315	-	-	-	6300	5	12	315
	99	270	36	-	-	-	-	-	-	-	306	-	-	-	6120	5	12	306
D	87	15	-	-	-	-	-	-	-	-	15	-	-	-	500			15
	94	4	-	-	-	-	-	-	-	-	3	-	-	1	80			4
	99	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		03%			00%			00%			+42%							
'94		.27%			00%			.27%			+ 2%							
'99		10%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	4133	Dec:	12%			
												'94	7160		1%			
												'99	7340		1%			
Coryphantha vivipara arizonica																		
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40	3	3	2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'87		00%			00%			00%										
'94		00%			00%			00%										
'99		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-			
												'94	0		-			
												'99	40		-			

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Eriogonum microthecum																		
M	87	-	-	1	-	-	-	-	-	-	1	-	-	-	33	12	7	1
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	-	-	-	1	-	-	-	-	-	1	-	-	-	20	6	9	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'87			00%			100%			00%							
		'94			00%			00%			00%							
		'99			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'87	33	Dec:	-			
												'94	0		-			
												'99	20		-			
Gutierrezia sarothrae																		
S	87	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	94	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	87	2	-	-	-	-	-	-	-	-	2	-	-	-	66			2
	94	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	87	5	-	-	-	-	-	-	-	-	5	-	-	-	166	7	6	5
	94	5	-	-	-	-	-	-	-	-	5	-	-	-	100	1	2	5
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40	8	10	2
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'87			00%			00%			-14%							
		'94			00%			00%			-80%							
		'99			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'87	232	Dec:	-			
												'94	200		-			
												'99	40		-			
Juniperus osteosperma																		
Y	87	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'87			00%			00%			00%							
		'94			00%			00%			00%							
		'99			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'87	33	Dec:	-			
												'94	0		-			
												'99	20		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Opuntia polyacantha																	
S	87	4	-	-	-	-	-	-	-	-	4	-	-	-	133		4
	94	10	-	-	-	-	-	-	-	-	8	1	1	-	200		10
	99	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2
Y	87	13	-	-	-	-	-	-	-	-	12	-	1	-	433		13
	94	28	-	-	-	-	-	-	-	-	21	-	7	-	560		28
	99	17	-	-	-	-	-	-	-	-	17	-	-	-	340		17
M	87	18	-	-	-	-	-	-	-	-	11	-	5	2	600	5 7	18
	94	74	-	-	-	-	-	-	-	-	69	1	4	-	1480	4 16	74
	99	89	-	1	-	-	-	-	-	-	90	-	-	-	1800	4 10	90
D	87	4	-	-	-	-	-	-	-	-	3	-	1	-	133		4
	94	6	-	2	-	-	-	-	-	-	5	-	1	2	160		8
	99	13	-	1	-	-	-	-	-	-	7	-	2	5	280		14
X	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	60		3
	99	-	-	-	-	-	-	-	-	-	-	-	-	-	240		12
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'87		00%			00%			26%			+47%						
'94		00%			02%			13%			+ 9%						
'99		00%			02%			06%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	1166	Dec:	11%		
												'94	2200		7%		
												'99	2420		12%		
Pediocactus simpsonii																	
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'87		00%			00%			00%									
'94		00%			00%			00%									
'99		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-		
												'94	0		-		
												'99	20		-		
Pinus edulis																	
S	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	-	-	-	-	-	-	-	-	-	1	-	-	-	20		1
Y	87	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	94	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	99	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'87		00%			00%			00%									
'94		00%			00%			00%									
'99		00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'87	0	Dec:	-		
												'94	0		-		
												'99	20		-		